# USER'S MANUAL

# SD424

# VIDEO PRINTER

Scientific-Atlanta
Spectral Dynamics Division

SERIAL _____

# USER'S MANUAL

# SD424

# VIDEO PRINTER

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# EXPORT
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# WARRANTY POLICY

All equipment manufactured by Spectral Dynamics Division as system components and all equipment made by other manufacturers and sold by Spectral Dynamics Division as system components are warranted against defects in materials and workmanship for a period of 90 days from date of installation or 120 days from date of shipment, whichever occurs first. We will repair or replace equipment which proves defective during the warranty period, providing the malfunction has not been caused by misuse or abnormal operating conditions.

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SDE-004 (10/82)

# DOMESTIC
# SYSTEM COMPONENT
# WARRANTY POLICY

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If a malfunction occurs, notify the Spectral Dynamics Division Customer Service Department or its representative in your area, giving the model and serial number of the system, and details of the problem. Upon receipt of the information, repairs will be made by parts exchange or, if deemed necessary, by on-site service.

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# CONTENTS


SECTION 1 PRECAUTIONS ..... 1–1

SECTION 2 NAMES AND FUNCTIONS OF EACH PART ..... 2–1

SECTION 3 PAPER LOADING ..... 3–1

SECTION 4 OPERATING INSTRUCTIONS ..... 4–1

4.1 COMPOSITE VIDEO SIGNAL ..... 4–1

4.2 SEPARATE VIDEO SIGNAL ..... 4–2

4.3 REMOTE PRINT OPERATION ..... 4–3

SECTION 5 TROUBLESHOOTING ..... 5–1

SECTION 6 SPECIFICATIONS ..... 6–1

6.1 I/O SIGNALS SPECIFICATIONS ..... 6–1

6.2 PRODUCT SPECIFICATIONS ..... 6–2

## SD424 VIDEO PRINTER

The SD424 Video Printer is a SEIKO TP-75 Video Printer. The operator should become thoroughly familiar with the contents of this manual prior to attempting interconnections or operation.

Any graphic or alphanumeric display or character font can be reproduced by the SD424 without hardware or software interfacing. This flexibility is achieved by using a video controller in the printer in place of the standard ASCII interface. The video controller directly samples the video signal used to produce the image on a rasterscan crt display. This provides a high resolution hardcopy of the contents of the display.

## SECTION 1 PRECAUTIONS

1. The TP–75 can make a hard copy from almost all video signal sources. However, special input specifications require some internal adjustments. Contact your dealer when these adjustments are necessary.

2. Use only specified recording paper.

3. Never print on torn or creased paper. The pins may be damaged.

4. Do not turn the printer off during printout. This may cause the mechanism to jam when power is re-applied.

5. Since a slight electrical discharge is produced at the printing head, do not use the printer in an inflammable environment.

6. Do not use the printer in areas of excessive humidity and dust.

7. Store the printing paper in a dry place. Exposure to moisture will discolor the paper.

8. Read "SECTION 5 TROUBLESHOOTING" in this manual before requesting repair.

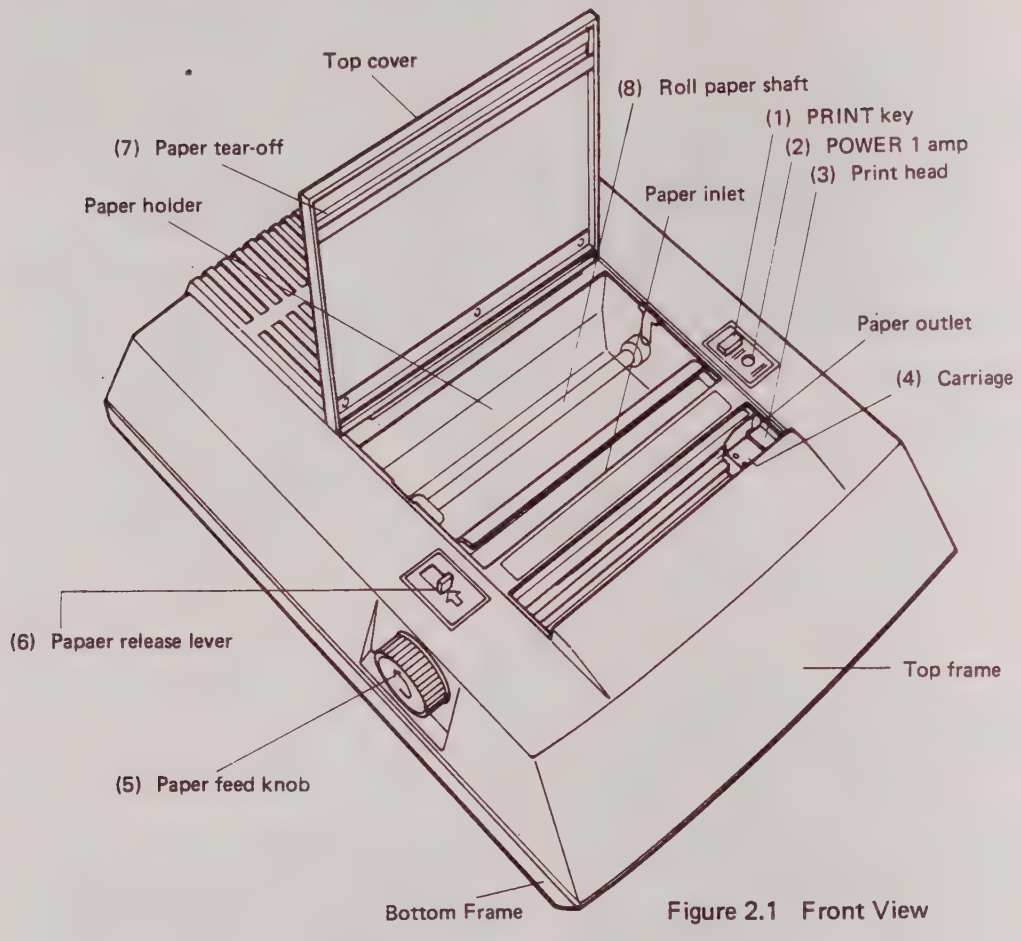



Figure 2.1 Front View

**References for Figure 2.1, "Front View"**

(1) Print key (PRINT)
Momentary type switch.
One screen is printed when this key is depressed. The printer stops (emergency stop) when this key is depressed during printout.

(2) Power lamp
This lamp lights when the POWER switch on the rear panel is turned on.

(3) Print head
The print head on the carriage scans to electrosensitive paper in the transverse direction of paper to print images.

(4) Carriage
The carriage makes the print head scan in the transverse direction of paper.

(5) Paper feed knob
A CCW (counterclockwise) turn of the paper feed knob allows manual paper feed. Use the same knob to load paper.
The knob does not actuate if the paper release lever is flipped in the direction of ⏢.
Keep off the knob in print operation. Otherwise, ununiform line feed may be occured.

(6) Paper release lever
When this lever is set in the direction of ⏢, then the paper feed mechanism will be released, and the paper can be move freely. Use this lever when loading the paper or when the paper clogs.

(7) Paper tear-off
The paper is torn off by pulling it diagonally forward across the cutting edge of the paper tear-off.

(8) Roll paper shaft
To set roll paper, use the roll paper shaft.

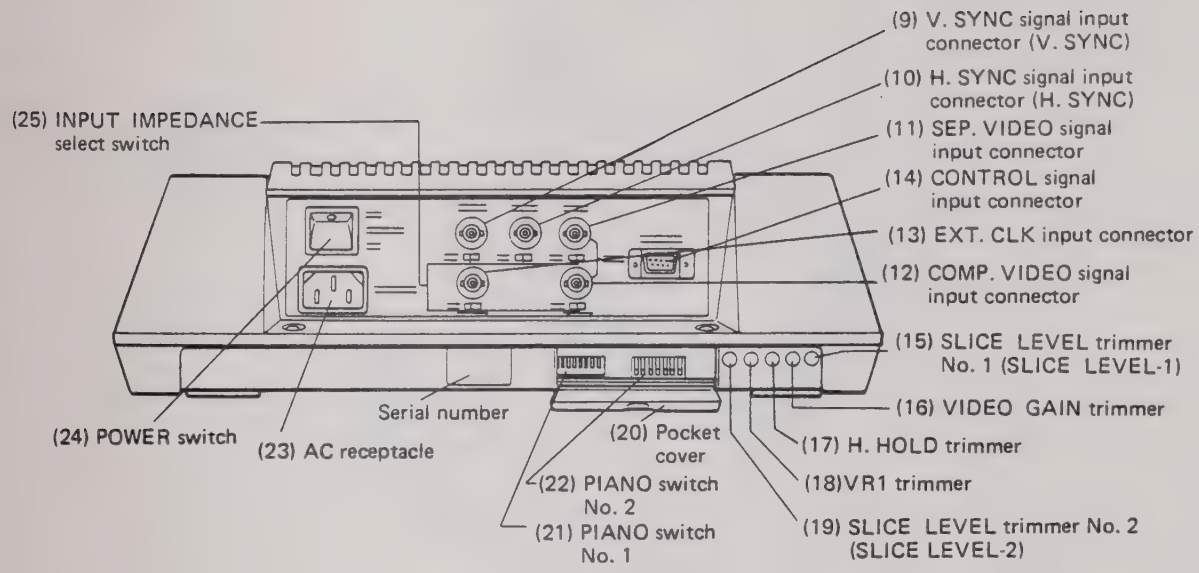

(9) V. SYNC signal input connector (V. SYNC)
(10) H. SYNC signal input connector (H. SYNC)
(11) SEP. VIDEO signal input connector
(14) CONTROL signal input connector
(13) EXT. CLK input connector
(12) COMP. VIDEO signal input connector
(15) SLICE LEVEL trimmer No. 1 (SLICE LEVEL-1)
(16) VIDEO GAIN trimmer
(17) H. HOLD trimmer
(18)VR1 trimmer
(19) SLICE LEVEL trimmer No. 2 (SLICE LEVEL-2)
(25) INPUT IMPEDANCE select switch
Serial number
(24) POWER switch
(23) AC receptacle
(20) Pocket cover
(22) PIANO switch No. 2
(21) PIANO switch No. 1

Figure 2.2 Rear View

**References for Figure 2.2, "Rear View"**

(9) V. SYNC signal input connector (V. SYNC)
Separate video V. SYNC signal input terminal. The connector is a BNC type.

(10) H. SYNC signal input connector (H. SYNC)
Separate video H. SYNC signal input terminal. The connector is a BNC type.

(11) SEP. VIDEO signal input connector (SEP. VIDEO)
VIDEO signal input terminal when separate video signal is input.
The connector is a BNC type.

(12) COMP. VIDEO signal input connector (COMP. VIDEO)
Composite video signal input terminal. The connector is a BNC type.

(13) EXT. CLK input connector (EXT. CLK)
External clock input terminal (unusable in the standard TP–75). When no external clock signal is input, be sure to the EXT. CLK INPUT IMPEDANCE select switch to the right position (OFF).

(14) CONTROL signal input connector (CONTROL)
The connector inputs and outputs the DEVICE signal, PAPER EXIST signal, PR. RDY signal and so on. Use the connector to operate the printer in online mode.

(15) SLICE LEVEL trimmer No. 1 (SLICE LEVEL-1)
An input composite video signal is separated into black and white signals at a level set by this trimmer. Thickness of the printed line is adjusted by the trimmer.

(16) VIDEO GAIN trimmer (VIDEO GAIN)
Use the trimmer to adjust gain of the video amplifier when a composite video signal is input. Adjust the trimmer according to the level of the incoming composite video signal.

(17) H. HOLD trimmer (H. HOLD)
The trimmer is adjusted to synchronize an input signal with the H. SYNC signal of the TP–75 if the input signal is a composite video signal in interlaced scan (2 : 1). Set the switch 5 of the adjusting synchronization with this trimmer.

Notes: (1) The range of an H. SYNC signal being adjustable by this trimmer is from 31 to 64 μs.
(2) Set the switch 5 of the PIANO switch No. 2 to the Up position if the input signal is a composite video signal in noninterlaced scan. Then they will be automatically synchronized each other irrespective of this trimmer.

(18) VR1 trimmer (VR1)
Use the trimmer to adjust the printout slippage to either side (horizontal direction on the CRT display). A turn of the trimmer shifts the image rightward or leftward.

(19) SLICE LEVEL trimmer No. 2 (SLICE LEVEL-2)
Use the trimmer to input a separate video signal. Adjust the trimmer with the input level of a VIDEO signal. Adjust this trimmer until optimum thickness of printed line is obtained.

(20) Pocket cover
Lid of the pocket where the PIANO switches No. 1 and No. 2 are in. Depress the lower section of the pocket, and the lid will open.

(21) PIANO switch No. 1 (PIANO 1)
The switches are numbered 1, 2,.....8, from the left.

- Switches 1-4: These switches adjust the vertical position of the printed image (refer to Figure 2.3). Any *one*, but only *one*, of the four switches *must* be in the Down (ON) position for the instrument to operate properly. Again, refer to Figure 2.3 and note image position (the little box with TP-75 in it) in relation to the switch number. For example: If switch one is in the Down (ON) position (2, 3 and 4 Up), the image will appear in the position shown by the little box located under No. 1 in Figure 2.3. The other three switches operate the same way. Image shift for each switch position is approximately 9 mm. The factory setting is with switch one in the Down (ON) position.

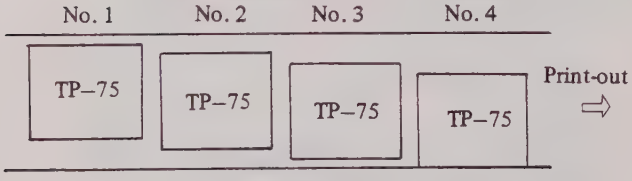



Figure 2.3

- Switch 5-7: Sets the print start point to any raster on the CRT display. Set the value of M according to Table 2. 1.
The relationship between M and video signal is shown in Figures 2.4 and 2.5.

Table 2.1

| M \ Switch No. | 5 | 6 | 7 |
|---|---|---|---|
| 2 | Down | Down | Down |
| 8 | Down | Down | Up |
| 16 | Down | Up | Down |
| 24 | Down | Up | Up |
| 32 | Up | Down | Down |
| 40 | Up | Down | Up |
| 48 | Up | Up | Down |
| 56 | Up | Up | Up |

← M is set to 8 in shipment.

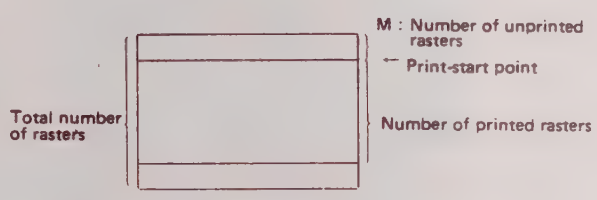



Figure 2.4

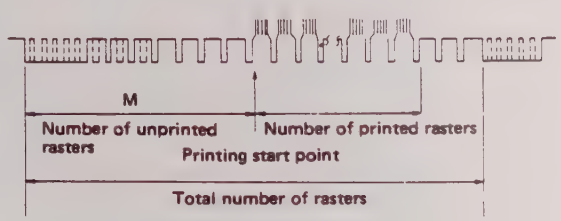



Figure 2.5

- Switch 8: Not used

(22) PIANO switch No. 2 (PIANO 2)

- Switch 1,2: Select either one using the following table with the number of print rasters of a video signal to input.

Table 2.2

| Number of Print Rasters \ PIANO switch No. 2, switch No. | | 1 | 2 | | 4 | |
|---|---|---|---|---|---|---|
| Interlaced scan (2 : 1) | Less than 560 rasters | Down | Up | ◎ | Down | ◎ |
| | Less than 1,120 rasters | Up | Down | | Up | |
| | Less than 1,500 rasters | Up | Up | | Up | |
| Non-interlaced scan | Less than 280 rasters | Down | Up | ◎ | Down | ◎ |
| | Less than 560 rasters | Up | Down | | Up | |
| | Less than 750 raters | Up | Up | | Up | |

◎ : Set position in shipment

- Switch 3: Used to invert black and white parts of an image to be printed. The part to positive polarity of a video signal is printed in black when the switch 3 is set to the Up position. The part to negative polarity of the video signal is printed in black when the switch is set to the Down position. The Switch 3 is set to the Up position in shipment.

- Switch 4: Used to change over frequency of a data sampling clock signal (converting an input video signal to print data).
  When the Switch 4 is set to the Up position, a sampling clock frequency becomes 48.7 MHz, and it is used for a video signal where an H. Sync signal is nearly 30 kHz.
  When it is set to the Down position, a sampling clock frequency is set to 24.35 MHz, and it is used for a video signal where an H. Sync signal is nearly 15 kHz.
  Usually, set it as shown in Table 2.2.

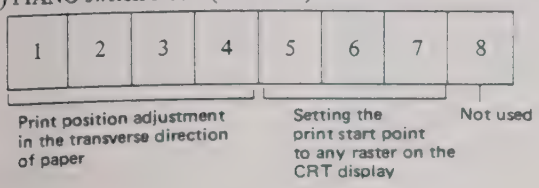
- Switch 5: The switch enlarges the synchronization range of an H. Sync signal when a composite video signal in noninterlaced scan is input. When the switch is set to the Up position, synchronization is taken irrespective of the H. HOLD trimmer.
  [When set to the Down position, synchronization is allowed only in a range (31 – 64 $\mu$s) adjustable by the H. HOLD trimmer.]
  Set it to the Down position in interlaced scan (2 : 1).
  Switch 5 is factory set to the Up position for shipment.

- Switch 6: Set the switch to the Up position if the input video signal is a composite video signal. Set it to the Down position if the input signal is a separate video signal.
  The switch 6 is set to the Up position (composite video signal) in shipment.

- Switch 7,8: Not used

Table 2.3 A table for PIANO Switch Set

(1) PIANO switch No. 1 (PIANO 1)


1 2 3 4 5 6 7 8
Print position adjustment in the transverse direction of paper
Setting the print start point to any raster on the CRT display
Not used

(2) PIANO switch No. 2 (PIANO 2)

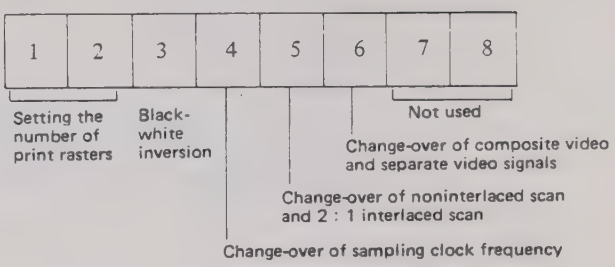
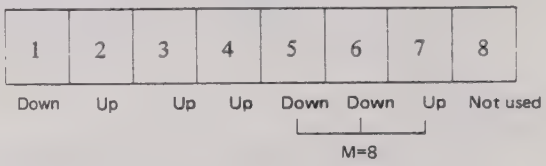

1 2 3 4 5 6 7 8
Setting the number of print rasters
Black-white inversion
Not used
Change-over of composite video and separate video signals
Change-over of noninterlaced scan and 2 : 1 interlaced scan
Change-over of sampling clock frequency

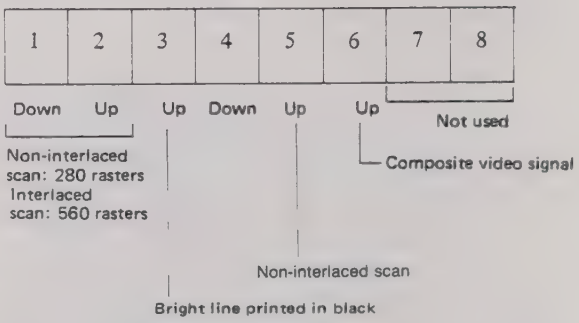
Table 2.4 PIANO Switch Set in Shipment

The PIANO switches are set as follows for a composite video signal (level: 1.0 Vp-p) in shipment.

(1) PIANO switch No. 1 (PIANO 1)




(2) PIANO switch No. 2 (PIANO 2)


1 2 3 4 5 6 7 8
Down Up Up Down Up Up
Not used
Non-interlaced scan: 280 rasters
Interlaced scan: 560 rasters
Composite video signal
Non-interlaced scan
Bright line printed in black

(23) AC receptacle
This is the 100, 117 or 220/240 VAC input terminal. The accessory AC cable connects to this is receptacle.

(24) POWER switch
Locker type switch. The POWER lamp lights when the switch is turned on.

(25) INPUT IMPEDANCE select switch
This switch selects the impedance of the video input terminal.
When it is not to the "OFF" (right side) position, high impedance is selected.
When "ON" (left side) position, 75Ω is selected.

## SECTION 3 PAPER LOADING

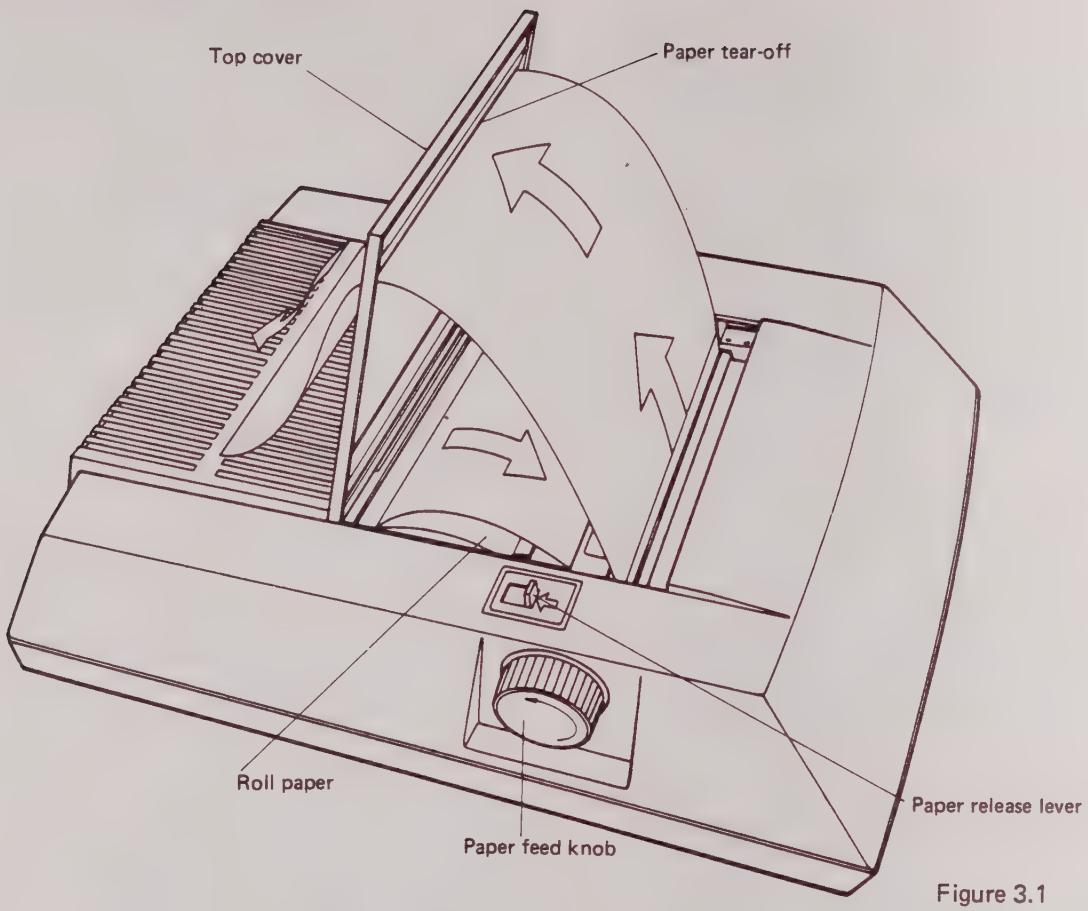



Figure 3.1

Load the paper in accordance with the following procedure.

(1) Peel off the roll paper tape to free the end of the paper.

(2) Open the top cover. Insert the roll paper shaft into the roll paper. Set roll paper to the paper holder with the roll paper shaft fit in the groove of the paper holder.
Pull the end of the paper forward so that the recording side (shiny aluminium side) is facing downward.

(3) Turn on the POWER switch. Then the buzzer will sound intermittently with an alarm showing paper empty.
The carriage may run 1 scan. This is operation to return the carriage to the home position (right edge).

(4) Turn the paper release lever toward you. Holding both sides of the paper by hand, straightforwardly insert its tip into the paper inlet until it stops. The paper tip may have any shape. Slant cutting is recommendable for easy insertion.

(5) Give another feed to the paper by right hand turning the paper feed knob CCW by left hand. Then the tip will come out from the paper outlet. Turn the paper release lever in the direction of ⏢ , and pull the paper.
The buzzer stops sounding when the paper is correctly loaded.

(6) Insert the paper into the paper tear-off. Close the cover.

(7) Pull the paper somewhat to ensure that an excess of load is not applied to the paper and that it is not irregularly inserted. Return the paper release lever to its home position (toward you).

(8) Turning the paper feed knob again, check to ensure that the paper is normally fed, especially checking it for no crease.

(9) Tear or cut the paper diagonally with the point at the left.

## SECTION 4 OPERATING INSTRUCTIONS

### 4.1 COMPOSITE VIDEO SIGNAL

1. Check the specifications of the input signal. The level must be 0.5 — 5.0 Vp-p in positive polarity for white.

2. Connect the coaxial cable from the video signal source to the COMP. VIDEO signal input connector of the TP-75.

3. Check the power line voltage. (100, 117 or 220/240 VAC ±10%)

4. Load the recording paper. (See Section 3.)

5. Set the video signal source.
   If the CRT display screen goes blank or dark, or the picture is distorted, set COMP. VIDEO of the INPUT IMPEDANCE select switch (25) of Fig. 2.2 to the right position (OFF).

6. Check to ensure that the Switch 6 of the PIANO switch No. 2 is set to the Up position.

7. Referring to the paragraph of PIANO switch No. 2, set the Switch 1, 2, 4, and 5 to the Up or Down position according to the specifications of the video signal to input. For the initial value in shipment, refer to (22), Section 2.

8. Depress the PRINT key to perform print operation.
   Emergency stop: The printer stops when this key is depressed during printout.
   Since the printer is normally set at the factory to print composite video signal (1.0 Vp-p), a good hard copies will be obtained in almost all cases. To improve the image quality of hard copies more, somewhat turn the SLICE LEVEL timmmer No. 1 at the rear of the printer rightward or leftward to select an easiest-to-see point. A right turn will thin printed lines, and a left turn will thicken them. Excellent hard copies can not be obtained if the input signal is out of specifications. Take the following procedure for adjustment.

(1) When printed image is all white or all black.

1) Turning the SLICE LEVEL trimmer No. 1 CW (clockwise) or CCW (counterclockwise), search for a position for a position where a picture is clearly printed.

2) Turn the VIDEO GAIN trimmer CW or CCW, and proceed to step 1) if the input signal level is greatly out of 1.0 Vp-p.

3) Check to ensure that the INPUT IMPEDANCE select switch beneath the EXT. CLK signal input connector at the rear panel is set to the right position (OFF).

(2) When printed image is inverted black/white.
Set the Switch 3 of the PIANO switch No. 2 to the reverse position.

(3) When horizontal synchronization is lost.

1) Noninterlaced composite video signal:
Check to ensure that the Switch 5 of PIANO switch No. 2 in the pocket at the rear side is set to the Up position if the input composite video signal is in noninterlaced scan. Synchronization will be achieved in almost all cases if so. Slightly turn the VIDEO GAIN trimmer CW or CCW to search for the synchronizing point while printing if synchronization not applied.

2) Interlaced (2 : 1 interlace) composite video signal:
Set the Switch 5 of the same switch to the Down position if the input composite video signal is in interlaced scan (2 : 1). Turning the H. HOLD trimmer CW or CCW, search for the synchronizing point.
When synchronization is lost, the printed screen will appear as slanted lines or may be partially distorted, the same as a common TV screen.

(4) When the printed image is out of place horizontally, one side is missed or an unwanted image is printed on one side.

Turn the VR1 trimmer slightly CW or CCW. Print an image on 1 frame and adjust the position until the image almost reaches the mid-position.

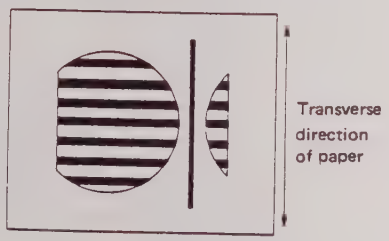



Figure 4.1

(5) When the top or bottom part of a printed image is deviated.

Referring to (21), Section 2, set Switches 5 to 7 of the PIANO switch No. 1 again.

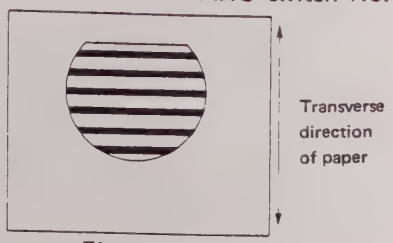



Figure 4.2

(6) When the vertical position of an image is out of place.

Referring to (21), Section 2, set Switches 1 to 4 of the PIANO switch No. 1 again.

(7) When the width of a printed image is too narrow (Figure 4.3) or too wide (Figure 4.4) in the transverse direction of paper (vertical direction on the CRT display).

Check the input video signal for the number of raster. Set Switches 1 and 2 of the PIANO switch No. 2 again.

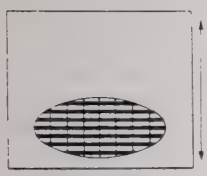



Figure 4.3

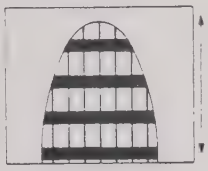



Figure 4.4

(8) When the printed image is excessively distorted in its horizontal direction (horizontal direction of the CRT display) (Figures 4.5 and 4.6).

Check the input video signal for H. Sync frequency. Set Switch 4 of the PIANO switch No. 2 again.

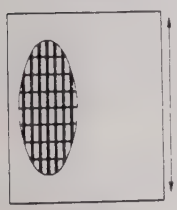



Figure 4.5

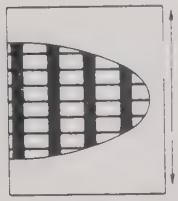



Figure 4.6

## 4.2 SEPARATE VIDEO SIGNAL

The operation method is almost the same as for the composite video signal. Refer to Section 4.1.

1. Check the input signal level.

| Input Signal | Level | Logic |
|---|---|---|
| VIDEO | 0.5 – 5.0V | Positive and negative |
| V. Sync | TTL | Negative |
| H. Sync | TTL | Negative |

2. Connect the video signal source to the TP-75 with three coaxial cables.
3. Check power line voltage. (100, 117 or 220/240 VAC ±10%)
4. Load the recording paper. (See Section 3.)
5. Set Switch 6 of the PIANO switch No. 2 to the Down position.
6. Set the video signal source. (See Section 4.1-5) Proceed as follows if an image disappears from the CRT display or disturbs itself due to synchronization failure at that time. Set the INPUT IMPEDANCE select switch of the V. Sync, H. Sync and SEP. VIDEO signal input connectors to the right position (OFF). Take the same procedure also if the output image of the printer is disturbed.
7. Referring to the paragraph of PIANO switch No. 2 (22), Section 2, set Switches 1, 2, 4 and 5 to the Up or Down position according to the specifications of the video signal to input.
8. Depress the PRINT key to perform print operation.
   Note: The printer stops when this key is depressed during printout.

Since the printer is adjusted to the ordinary composite video signal in shipment, generally, excellent hard copies can not be obtained in the separate video signal as soon as the video signal source is connected. If printed image quality is incomplete, take the following adjustment with its extent.

(1) When printed lines are too thick or too thin.

1) Giving print operation, slowly turn the VIDEO GAIN trimmer until appropriate thickness is acquired.

2) Making the printer re-execute print operation, turn the SLICE LEVEL timmmer No. 2 (SLICE LEVEL-2) at the rear panel for fine adjustment.
A right turn will thicken printed lines, and a left turn will thin them.

(2) When the printed image is all white or black.

1) Turning the SLICE LEVEL trimmer No. 2 CW or CCW, search for a position where a picture is clearly printed.

2) Check to ensure that the INPUT IMPEDANCE select switch beneath the EXT. CLK input connector at the rear panel is set to the right position (OFF).

(3) When black and white of the printed image are inverted.

Set Switch 3 of the PIANO switch No. 2 to the reverse position.

(4) When the printed image is out of place horizontally, one side is missed or an unwanted image is printed on one side.

Take the same procedure as stated in (4), Section 4.1–8.

(5) When the width of a printed image is too narrow (Figure 4.3) or too wide (Figure 4.4) in the transverse direction of paper (vertical direction of the CRT display).

Take the same procedure as stated in (7), Section 4.1–8.

(6) When the printed image is excessively distorted in the horizontal direction (horizontal direction of the CRT display).

Take the same procedure as stated in (8), Section 4.1–8.

## 4.3 REMOTE PRINT OPERATION

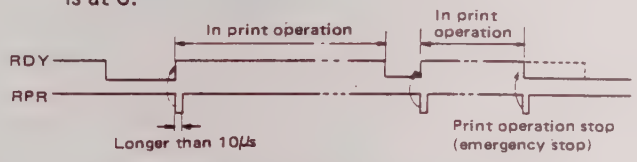
Remote print operation can be performed using the CONTROL signal I/O connector at the rear panel.

1. Connector: 9-pin D-sub connector
2. Pin No. and signal name

| Pin No. | Signal Name | Function |
|---|---|---|
| 1 | GND | Return of $\overline{DVC}$ |
| 2 | GND | Return of $\overline{RDY}$ |
| 3 | GND | Return of $\overline{RPR}$ |
| 4 | GND | Return of $\overline{PDO}$ |
| 5 | | Not used |
| 6 | $\overline{DVC}$ (output) | Device connect check signal: 0 with yes |
| 7 | $\overline{RDY}$ (output) | Printer ready signal: 0 with ready |
| 8 | $\overline{RPR}$ (input) | Remote print instruction signal: Print when set to 0 |
| 9 | $\overline{PDO}$ (output) | Paper detector signal: 0 with yes |

3. Remote print operation

Print operation will start and the $\overline{RDY}$ signal will be set to 1 when the $\overline{RPR}$ signal is set to 0 for longer than 10 $\mu$s where the $\overline{RDY}$ signal is at 0.




Print operation will stop when the $\overline{RPR}$ signal is set to 0 in print operation.
Check the $\overline{DVC}$ and $\overline{PDO}$ signals for their state in addition to the $\overline{RDY}$ signal to make remote print operation.
For particular specifications of I/O signals, refer to Section 6, "SPECIFICATIONS".

## SECTION 5 TROUBLESHOOTING

This section describes troubleshooting and repairs of typical troubles. Since the trouble may be due to operator error, make the checks described in this section before attempting any repairs.

| TROUBLE | CAUSE AND REMEDY |
|---|---|
| The buzzer sounds intermittently, and no print operation is performed with the PRINT key depressed. | 1. Paper is not loaded.<br>○ Load it. |
| The printer operates but prints nothing at all. | 1. The printer is not connected to the video signal source.<br>○ Connect the video signal source.<br>2. The video signal source does not send any video signal.<br>○ Check the video signal source.<br>3. The input signal specifications are unsuitable.<br>○ Check the input signal for its specifications.<br>4. The signal cable opens.<br>5. More than two of Switches 1 to 4 of the PIANO switch No. 1 are set to the Down position.<br>○ Correctly set them referring to (21), Section 2.<br>6. Setting of Switches 1, 2, and 6 of the PIANO switch No. 2 is wrong.<br>○ Correctly set them referring to (22), Section 2.<br>7. The SLICE LEVEL trimmer No. 1 or No. 2 is improperly adjusted.<br>○ Correctly adjust it referring to (15) and (19), Section 2. |
| Prints are entirely dark. | 1. The SLICE LEVEL trimmer No. 1 or No. 2 is improperly adjusted.<br>○ Correctly adjust it referring to (15) and (19), Section 2s<br>2. The input impedance selector switch (25) beneath the EXT. CLK input connector (13) at the rear pannel is not set to the right position (OFF).<br>○ Set it to the right position. |
| An image is out of place vertically. | 1. Switches 1 to 7 of the PIANO switch No. 1 are improperly set.<br>○ Correctly set them referring to Section 2. |
| An image is out of place horizontally. | 1. The VR1 is improperly adjusted.<br>○ Correctly set it referring to Section 2. |
| An image is crushed. | 1. Switches 1, 2, and 4 of the PIANO switch No. 2 are improperly set.<br>○ Correctly set them referring to Section 2. |
| An image is distorted. | 1. The H. HOLD trimmer is improperly set.<br>○ Correctly set it referring to Section 2. |

| TROUBLE | CAUSE AND REMEDY |
|---|---|
| The printer does not operate operate and the buzzer sounds continuously though the paper is loaded. | 1. The print head stops halfway on the paper.<br>○ Turn off the POWER switch. Open the top cover. Remove the paper from the print head. In that case, pinch the print head by finger and pull it toward you or remove the screws in it with the screwdriver. Remove it from the carriage. |
| The density of the printed dot is extremely insufficient or irregular. | 1. Paper property is inadequate.<br>○ Use specified paper.<br>2. Dust is deposited on the discharge pin tips of the print head.<br>○ Turn off the POWER switch. Remove dust with pincettes.<br>3. The print head are worn out or broken.<br>○ Request replacement of the printing head by your dealer. |
| Uneven printout or dark pin scanning lines visible. | 1. Paper property is inadequate.<br>○ Use specified paper.<br>2. The pins of the print head unevenly contact the paper.<br>○ Set wrapping film (note) for the paper, and perform print operation (1/2 screen).<br>3. The platen of the printer is damaged.<br>○ Request repair by your dealer.<br>4. The paper is not correctly loaded.<br>○ Correctly load it. |
| Ununiform paper feed pitch | 1. The roll paper is not correctly set to the paper holder.<br>○ Correctly load it. |

# SECTION 6 SPECIFICATIONS

## 6.1 I/O SIGNALS SPECIFICATIONS

### 1. Types of I/O signals

[Input signals]

- Video signals

  Type: Composite video signal (Note 1)

  Separate video signal (Note 2) { H. SYNC / V. SYNC / VIDJO signals

  (Note 1) Composite sync signal + video signal shall also be available if specified.

  (Note 2) External or internal SYNC CLK signals shall also be available for high resolution if specified.

  Scanning method: Noninterlaced and interlaced

- Remote print command signal ($\overline{RPR}$)

[Output signals]

- Print ready signal ($\overline{RDY}$)
- Device connect check signal ($\overline{DVC}$)
- Paper detector signal ($\overline{PDO}$)

### 2. Signals Specifications

[Composite video signal]

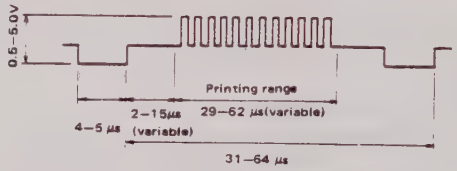
(1) Input voltage level: 0.5 – 5.0 Vp-p

(2) Polarity: Positive for white, negative for synchronization

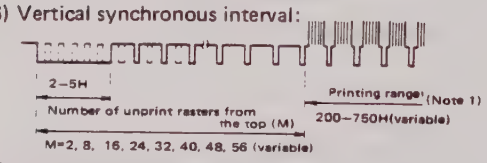
(3) SYNC. level: 30±5% of the input voltage level

(4) H. SYNC range: 31 – 64 μs
V. SYNC range: 12 – 25 ms

(5) Horizontal synchronous interval:




(6) Vertical synchronous interval:

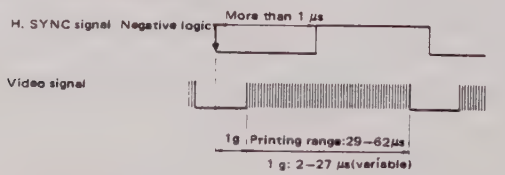



[Separate video signal]

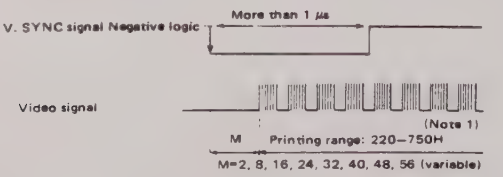
(1) I/O voltage level: H. SYNC, V. SYNC signals; TTL level VIDEO signal; 0.5 – 5.0 Vp-p (75 Ω or high impedance)

(2) Logic: H. SYNC, V. SYNC signals; Negative logic VIDEO signal; Positive or negative logic (changeable)

(3) H. SYNC interval:



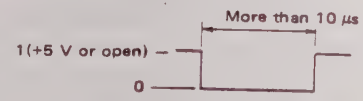

(4) V. SYNC interval:



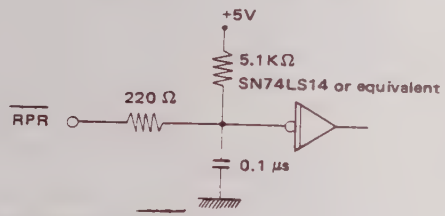

(Note 1): Number of print rasters is from 400 to 1500H in the case of interlaced scan.

[Remote print command signal: $\overline{RPR}$]

(1) Level and pulse width:




(2) TP–75 input circuit: SN74LS14 or eqoivalent

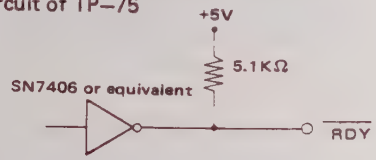



[Print ready signal: $\overline{RDY}$]

This signal is output from the TP–75.

(1) The print commands shall be acceptable if the following conditions are satisfied, and the signal shall be set to 0 (less than 0.4V). High impedance or +5V in other cases
1) Power ON
2) Paper is loaded.
3) Printer not operating (including automatic paper feed operation)

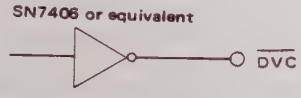
(2) Output circuit of TP–75




[Device connect check signal: $\overline{DVC}$]

(1) The TP–75 shall be connected and operable if the following conditions are satisfied, and the signal shall be set to 0 (less than 0.4 V). High impedance in other cases.
1) Power ON
2) The Control signal I/O connector cable is connected

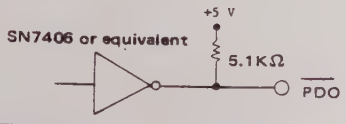
(2) Output circuit of TP–75




[Paper detector signal: $\overline{PDO}$]

(1) The signal shall be set to 0 (less than 0.4 V) if the following conditions are satisfied. High impedance or +5 V in other cases.
1) Power ON
2) Paper is loaded.

(2) Output circuit of TP–75




For the $\overline{RDY}$, $\overline{RPR}$, $\overline{DVC}$ and $\overline{PDO}$ I/O connectors, see Section 4.3.

## 6.2 PRODUCT SPECIFICATIONS

| 1. Recording Specifications | |
|---|---|
| Printing method | Electrosensitive |
| Number of print rasters | In nointerlaced: 280, 560, 750<br>In interlaced: 560, 1120, 1500 |
| Picture size | 195 x 225 mm standard |
| Resolution | 5.6 dots/mm in the horizontal direction of the CRT display<br>8.4 dots/mm maximum in the vertical direction of the CRT display |
| Printing rate | Typical 23.5 seconds/screen |

| 2. Paper Specifications | |
|---|---|
| Name | TP–75 recording paper<br>(As specified for the TP–75) |
| Length | 60 m |
| Width | 216 mm (Letter size) |

| 3. Input signal specifications | |
|---|---|
| Type | Composite video signal:<br>White positive, sync. negative; 0.5–5.0Vp-p<br>Separate video signal:<br>Video signal: 0.5 – 5.0 Vp-p (positive or negative)<br>SYNC signal: TTL level (negative) |
| Scanning method | Interlaced and noninterlaced |
| Sync. range of composite video signal | Vertical: 12 – 25 ms<br>Horizontal: 31 – 64 $\mu$s |
| Connector | Video signals: BNC receptacle<br>Control signals: 9–pin D–sub connector |

| 4. General specifications | |
|---|---|
| Power requirements | 100, 117 or 220/240 VAC ±10%, 50/60 Hz ±5%, Max. 50W |
| Environment | Temperature: 5 – 35°C (41 – 95°F)<br>Relative humidity: 20 – 90% RH (no condensation) |
| Dimensions | 365(W) x 116(H) x 480(D) mm |
| Weight | 10 kg |

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Scientific-Atlanta has sales and service centers around the world. In addition, an international network of sales representatives is available to assist you anywhere in the world.

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### Customer Support

At Scientific-Atlanta, we are committed to supporting the instruments we sell. This philosophy is demonstrated through a world-wide sales and service organization which provides a variety of services to our customers.

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Scientific-Atlanta maintains a network of service centers around the world. These centers are staffed and equipped to handle most maintenance requirements. In addition, the service center can provide technical assistance on problems related to the application, operation, or maintenance of our products.

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